

**PVdry² Tabletop Class B Pre- & Post-Vacuum Steam Sterilizer
(Project #06-014) (8/08)**



The PVdry², Barnstead's second-generation class B pre- and post-vacuum steam sterilizer, is a fully automated, microprocessor-controlled, tabletop sterilizer with a 10 inch diameter by 15½ inch deep, round, stainless steel chamber. Features include a front control panel with a large easy-to-read LCD display and four standard preset cycles (Unwrapped, Wrapped, Towel Packs, and Handpiece). The unit uses a patented non-recirculating water system, which allows clean water into the chamber for each cycle and places post cycle contaminated water in a separate reservoir. The pre-vacuum cycle is designed to eliminate air pockets within the chamber and ensure "tough-to-reach" areas are saturated with steam for sterilization. The post-vacuum technology removes steam from the chamber purportedly delivering dry packages at the end of the cycle. The manufacturer claims the closed-door instrument drying time is reduced by 50% compared to a gravity steam sterilizer and that instruments are in contact with residual steam for a shorter time reducing the potential for corrosion. Drier packages help to prevent microbial contamination resulting from wet packaging materials. The sterilizer can be purchased with the optional Harvey® DI+ Pressure Cartridge System and has an automatic alert system letting the user know when it's time to change the filter. The Harvey® DI+ is a water supply and filter system which converts tap water to deionized water and automatically refills the sterilizer unit eliminating the need for manual refilling and the requirement for a separate source of deionized water. Several other improvements compared to the original PVdry tabletop steam sterilizer (Project # 02-029) include: a CycleStor™ USB flash drive allowing the user to download and store sterilization cycle data on a computer; a multipurpose tray and cassette rack with three trays; a new vacuum pump that purportedly is 30% quieter; and a new waste tank design which reduces steam output. Electrical requirements range from 120-240 VAC (domestic) to 230 VAC (international). The PVdry² tabletop sterilizer has a two-year limited warranty.



Manufacturer:

Barnstead International (Part of Thermo Fisher Scientific, Inc.)
Barnstead/ Harvey Sterilizers for Dentistry
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Suggested Retail/Government Price:

\$8253.00	PVdry ² Tabletop Class B Pre- & Post-Vacuum Steam Sterilizer without Harvey® DI+ Pressure Cartridge System (Item # ST127335) Accessories Included: - CycleStor™ USB flash drive - Multi-purpose tray and cassette rack - Three trays
\$9074.00	PVdry ² Tabletop Class B Pre- & Post-Vacuum Steam Sterilizer with Harvey® DI+ Pressure Cartridge System (Item # ST127345) - Accessories as listed above
\$91.00	Harvey DI+ full-size replacement cartridge (Item # D502118)

ADVANTAGES:

- + Multiple voltage configurations
- + Informative operation manual and instructional DVD video
- + Easy-to-read LCD display provides cycle processing status
- + Four factory-preset programs
- + Manual "Extra Dry" cycle available (5-99 minutes)
- + CycleStor™ USB flash drive for storing cycle data
- + Harvey® DI+ Pressure Cartridge System autofill option
- + Minimal routine maintenance
- + No visible instrument corrosion

DISADVANTAGES:

- Normal "Wrapped" cycle had low percentage of dry instrument packs/cassettes
- "Extra Dry" cycle required for adequate/consistent drying
- Cycle processing time lengthened when using "Extra Dry" cycle
- Objectionable sterilizer noise level
- Malfunctioned twice during laboratory evaluation

SUMMARY AND CONCLUSIONS:

Two manufacturer claims of function and improvement for the PVdry² sterilizer, namely complete instrument drying and a reduction in noise levels were not confirmed in the DECS Laboratory or during the clinical-user evaluations. An "Extra Dry" cycle had to be manually programmed and added after the completion of the normal "Wrapped" processing cycle to obtain adequate and consistent dry instrument packs/cassettes in the laboratory. The addition of extra drying time increased overall cycle processing times into the 60 – 70 minute range. The clinical evaluators reported higher noise levels for the PVdry² sterilizer compared to other sterilizers used within their clinic. Noise surveys completed at the clinical evaluation site and at DECS confirmed episodic noise levels which could interfere with staff and/or patient communication in a small dental office or dental suite. The sterilizer evaluated in the DECS laboratory malfunctioned twice (faulty circuit chip and internal water leak). Customer support from the company helped to resolve both issues in a timely manner and returned the sterilizer to normal function. The CycleStor™ USB flash drive provides an excellent option for the documentation and storage of completed cycle data compared to using an optional printer at extra cost or recording the data manually in a logbook. The optional Harvey® DI+ Pressure Cartridge System automatically refilled the sterilizer with filtered deionized water from tap water. This eliminated manual refilling and the need for a separate distilled water source. Over 500 sterilization cycles were completed in the DECS Laboratory without the need to replace the Harvey® DI+ filter. The manufacturer's claimed advantage of the post-vacuum feature of the PVdry² sterilizer delivering dry packages more efficiently and more quickly than conventional gravity steam sterilization was not verified by this evaluation. However, the sterilizer produced satisfactory results when extra processing time was added for instrument drying. When purchasing any sterilizer, clinics should carefully evaluate their overall instrument processing requirements, available manpower and acceptable processing time limitations. Although rarely used as the primary sterilizer within an Air Force facility, tabletop sterilizers often serve an important back-up or supplemental role. The PVdry² sterilizer is rated **Acceptable** for use in US Air Force dental clinics.